

to those in the parent-stock. The body contains a large number of granules, and also masses of what appear to have been fully formed spermatozoa. Whether this is the male of the above form, or another, is, of course, an open question ; but the bristles certainly correspond.

On Recent Species of *Heteropora*. By GEORGE BUSK,
F.R.S., F.L.S.

[Read June 19, 1879.]

(PLATE XV.)

IN the June number of the 'Journal of the Royal Microscopical Society,' Mr. W. Waters, F.G.S., has described a species of *Heteropora* from the seas of Japan to which he has given the name of *H. pelliculata*; he also mentions a second species from Australia under the appellation of *Heteropora cervicornis*, considering it to be identical with the *Plethopora cervicornis* of M. d'Orbigny*.

Till the appearance of Mr. Waters's interesting communication no species belonging to the genus seems to have been published. The occurrence, therefore, of the above two forms, belonging to a genus of which we had previously no species more recent than the Crag, and extending back to the Cretaceous period, is of particular interest.

My object in this brief communication is to indicate the existence at the present time of what may probably be a third species referable to the genus.

Some few years back Prof. Nicholson was good enough to furnish me with some very fine specimens of a recent *Heteropora* which he had received from New Zealand, and of which it was long since my intention to have furnished an account. This intention, however, has not hitherto been carried out; and I have thus been anticipated by Mr. Waters in the announcement of the fact of the present existence of the ancient genus *Heteropora*.

The New-Zealand species in most respects appears to bear a very strong resemblance to the Japanese form, and I am by no means satisfied that they are not specifically the same. As, however, there are one or two points in which, to judge from Mr.

* Pal. Française, pl. 799. figs. 4, 5.

Waters's description and excellent figures, they do not quite agree, I have thought it might be useful to place on record a short description of the New-Zealand form in the 'Linnean Proceedings.'

In the absence of more complete acquaintance with Mr. Waters's form, I have provisionally designated the present one

HETEROPORA NEOZELANICA, n. sp.? (Pl. XV. figs. 1-4.)

Zoarium erect, composed of short divergent branches, springing from a short thick stem, and soon dividing once or twice dichotomously, and terminating in blunt rounded extremities. The diameter of the primary branches is about $\cdot 2$ inch and of the terminal ones about $\cdot 1$ to $\cdot 15$ inch. The surface presents orifices of two kinds, though scarcely distinguishable in size. The larger ones, in the older parts of the growth, have a slightly raised peristome and are quite circular; the others (*cancelli*), disposed more or less regularly round these, generally to the number of 7 or 8, are more or less angular, and the border of the opening is never raised.

In the perfect state the surface, as in most Polyzoa, is covered with a thin chitinous pellicle, by which the cellular openings are more or less closed. In the New-Zealand species this epithelial coat does not seem to become calcified or thickened, as in *H. pelliculata*, Waters, but always retains a delicate membranaceous character, and it is easily removed by caustic soda. Nor have I been able consequently to perceive the minute openings in the covering of the cancellar orifices described by Mr. Waters.

In sections the walls of the zoœcia and of the intermediate barren tubes or cancelli are perforated, as described and figured by Mr. Waters, by numerous infundibular pores, by which, as it would seem, facilities exist for the permeation of fluids throughout the entire zoarium. These pores and pore-canals are lined, like the zoœcia and cancelli, with a thin animal substance, which is readily dyed by any aniline colour &c., by which means the pore-canals are rendered beautifully distinct in thin sections.

The chief points of difference between mine and Mr. Waters's Japanese form would seem to consist:—(1) in the difference of habit—the branches in *H. pelliculata* appearing to be longer and more terete and to be occasionally connate, whilst in *H. neozelanica* they are short and not terete, expanding and never joined together; and (2) in the absence in *H. neozelanica* of the eal-

careous pellicle or epitheca, left after incineration in *H. pelliculata*. The internal structure, as regards the interzoecial pores and canals, appears to be very much the same in both, except that in *H. neozelanica* there is no appearance in the walls of the zoecia of the constrictions, giving them a beaded aspect, described and figured by Mr. Waters, and to which he is inclined to attribute the apparent constrictions of the zoecia which are so common in most of the fossil species. In some of these, however, as I may take this opportunity of remarking, there are, besides the deceptive appearance of constrictions above referred to, distinct transverse dissepiments, which, as Mr. Waters remarks, are distinctly figured by M. J. Haime in his *H. pustulosa*. They are, however, equally evident in other fossil species.

DESCRIPTION OF PLATE XV.

- Fig. 1. *Heteropora neozelanica*, natural size.
 2. Portion of surface, magnified.
 3. Transverse section, also highly magnified.
 4. Portion of surface, showing openings, zoecia, and cancelli, much enlarged.
 5. A dead fragment of *Myriozoum* ——? resembling *Heteropora*.
 6. Portion of surface of same, enlarged.
 7. A doubtful form, resembling *Heteropora* of a globular form.
 8. A small portion of the surface, magnified.

The two latter forms (figs. 5-8) are from the 'Challenger' collection.

An Analysis of the Species of Caddis-flies (*Phryganea*) described by Linnæus in his 'Fauna Suecica.' By Pastor H. D. J. WALLENGREN. Communicated (with Notes) by R. M'LAGHLAN, F.R.S., F.L.S.

THE identification of the Swedish species of *Phryganea* described by Linnæus cannot fail to be of value to science; and I have therefore attempted to render them more clear. But it is not to be expected that all the enigmatical questions propounded in his descriptions can be answered; and I shall be glad if some of them, at least, are elucidated by the remarks that follow.

PHRYGANEA PHALÆNOIDES (No. 1481).—The identity of this with *Neuronina phalænoides* of succeeding authors is proved be-

Fig. 4.

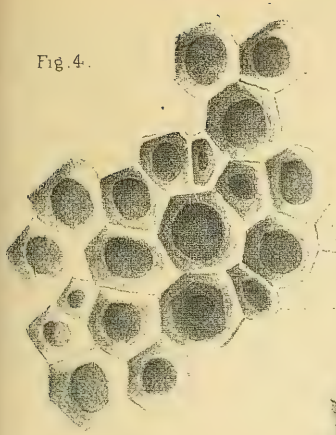


Fig. 3.



Fig. 1.



Fig. 2.

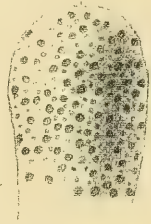


Fig. 5.



Fig. 7.

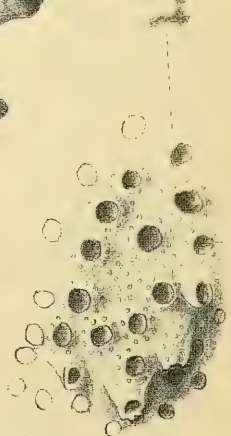


Fig. 6.



Fig. 8.

NEW SPECIES OF HETEROPORA.